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10/733,944	12/12/2003	Sten R. Gerfast		8717

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EXAMINER

NGUYEN, TRAN N

ART UNIT	PAPER NUMBER
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2834

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/733,944	Applicant(s) GERFAST, STEN R.	
	Examiner Tran N. Nguyen	Art Unit 2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 March 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 February 2009 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the following must be shown:

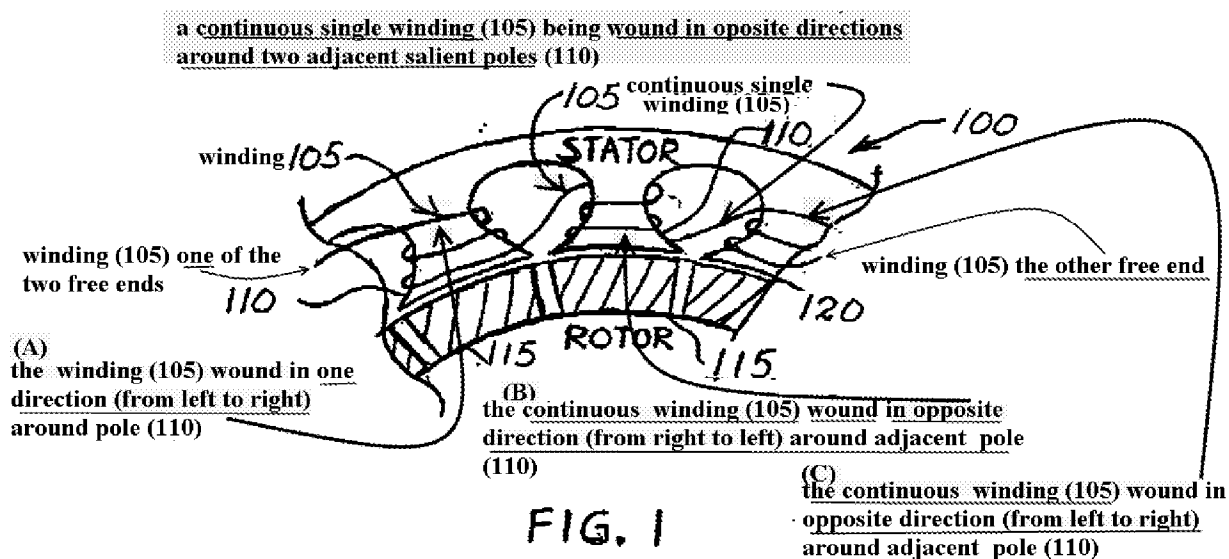
(1) each salient pole including alternately wound coils coupled to form a single coil, as in claims 1 and 9, must be shown or the features canceled from the claims. *No new matter should be entered.*

As shown in the attached Figure 1, with annotations, a continuous single winding (105) being wound around three salient poles alternately in two opposite directions, as following:

(A) the single winding (105) being wound from *left to right* around a salient pole (110), which is located at the outer-left side in Fig 1, and one free end of the winding (105) is at this outer-left-side salient pole;

(B) the same continuous single winding (105) continuously being wound from *right to left* around adjacent salient pole (110), which is located at the middle in Fig 1; and,

(C) the very same continuous single winding (105) being continuously wound from *left to right* around adjacent salient pole (110), which located at the outer-right side in Fig 1, and the other free end of the continuous single winding (105) is at this outer-right-side salient pole.



Thus, all of Figures 1 of all the drawings, which were filed on 2/24/09, 04/02/06 and 12/12/03, show winding (105) being alternately wound, in opposite directions, around respective **plural** salient poles and the winding (105) being connected in series.

No drawings in the application show **each** salient pole including alternately wound coils coupled to form a single coil, as in claims 1 and 9.

Also, the following must be shown:

(2) a stator having the same number of salient poles as a rotor having the equal number of rotor poles, as recitation of “a stator with a like number of salient poles” in claims 1 and 9.

Figure 1 only shows partial portion of the stator and the rotor; none of the drawings show a complete figure that illustrates the stator and the rotor having equal numbers of respective stator poles and rotor poles.

(3) the rotor is having claw-shaped magnetic poles, as in claims 5 and 14

Figure 1 only shows partial portion of the stator and the rotor; none of the drawings show the rotor with claw-shaped magnetic poles.

(4) the D.C. load is having a capacitor connected across it, as in claim 21.

Fig 2 shows a DC load but does not show DC load with a capacitor connected across it.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will

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be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

Claims 1-22 are objected to because of the following:

Among claims 1-22, the terms “AC” and “DC” should be completely spelled out at least once in the independent claims, as alternative current (A.C) and direct current (D.C) in order to avoid any indefinite issue.

In claim 1, the phrase “generating AC” should be “generating AC output” for clarification.

Among claims 2-8 and 10-22, the term “the output” should be “the generator AC output” in order to have consisting antecedent basis.

In claim 11, the terms “Triac” or “S.C.R” should be clearly spelled-out and identify what kind of electronic devices for clarification.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1 and 9 are rejected under 35 U.S.C. 112, **first paragraph**, as failing to comply with the written description requirement. The claim contains subject matter which was not described in the specification (hereinafter “spec”) in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention.

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The spec does not provide any description for the amended claimed language of "a stator with a like number of salient poles, each including alternately wound coils coupled to form a single coil with two free ends" (as in claim 1). This recitation is understood as the stator has the same number of salient poles, each (single) salient pole including alternately wound (plural) coils coupled to form a single coil with two free ends.

However, the spec describes the following:

[0049] FIG. 1 is a partial view of the wound stator 100 of the present invention showing the alternately wound magnet wire windings 105 on a pair of salient stator poles 110 that are made from lamination steel. The windings 105 are shown series connected having two free ends.

This is understood stator winding (105) being wound alternately in opposite directions on two respective adjacent salient poles (110), wherein the stator windings of all salient poles are said to be connected in series, and there are two free ends out of the whole series connection.

This description of the spec is shown in Figure 1, i.e. a winding (105) being wound in opposite directions around two respective adjacent salient poles, wherein all the windings of all three salient poles are connected in series with one free end located at the outer-left-side salient pole and the other free end located at the outer-right-side salient pole.

The description in the spec and the drawing do not provide any support for the amended claimed language the recites each (single) salient pole (of the stator) including alternately wound (plural) coils coupled to form a single coil with two free ends.

Claims 1-22 is rejected under 35 U.S.C. **112, second paragraph**, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 1 and 9, "a stator with a like number of salient poles" is indefinite because it is unclear what is so-called "a like number" in "a like number of salient poles".

In light of the spec, it is understood as "a stator having a plurality of salient poles, wherein a number of said plurality of salient poles is equal to a number of said plurality of rotor poles."

Other claims are included herein due to their dependencies from independent claims 1 and 9.

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The following applied art rejections in this Office Action based on the above Examiner's interpretations, in light of spec., for the indefinite issues addressed herein this 35 U.S.C. 112, second paragraph rejection.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 6 and 19, as understood, are rejected under 35 U.S.C. **102(b)** as being fully anticipated by **Delaite Alain (WO 01/13499—hereinafter Delaite)**.

Delaite reference discloses a single coil generator (fig 3) comprising:

a rotor (7 in fig 3) journaled in an generator frame (14 in fig 2), said rotor having a plurality of permanent magnet poles (3 in fig 3),

a stator (1 in fig 3) with a plurality of salient poles (2 in fig 3), wherein the number of stator salient poles (2) is equal to the number of rotor poles (3), as shown in fig 3, the stator has six salient poles (2) and the rotor has six permanent magnet poles (3);

wherein each salient pole including alternately wound coils (18 or 19) being coupled to form a single coil with two free ends (10) or two ends (9), wherein the coils are position in front of the rotor poles for generating AC that is connected to an AC load (inherently but not shown).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 2-4 and 22 are rejected under 35 U.S.C. **103(a)** as being unpatentable over **Delaite**, as applied in the base claim, and in view of **Fair (US 5,406,186—hereinafter Fair)**.

Delaite reference discloses the claimed invention, except for the added limitations of the above listed claims.

Fair reference discloses (as shown in fig 5) a generator having its output the output being split into AC and rectified into DC for AC load and DC load, wherein the circuit including a switch controller (32) controlling AC output for the AC load and the rectified DC output to a DC load. Those skilled in the art would understand that the important teaching concept of **Fair** reference is that AC generator's output can be divided into AC output for AC load and can be rectified into DC output for DC load, as well as low and high voltage, via a controllably switching mechanism; furthermore, based on this important teaching concept, it would have been obvious to an artisan with necessary skill and ordinary knowledge in the art to select a controllably switching mechanism as a computerized controllably switch or manual switches, relays or semi-conductors switching devices being used as DC rated switches and AC rated switches for the purpose of controllably utilizing the AC generator's output as AC output and DC output.

Thus, by applying the **Fair** reference's important teaching, it would have been obvious to one skilled in the art at the time the invention was made to modify the prior art AC generator by providing a control circuit that controllably switching the generator's AC output to be split into AC output for AC load and rectified DC output for DC load and/or having any combinations of low and high voltage. Doing so would enable the generator's AC output to be variously used for any particular industrial application that has both DC and AC loads.

Furthermore, **Fair** reference shows that the AC output and the DC output are both connected to ground terminals, it would have been obvious to one skilled in the art at the time

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the invention was made to modify the prior art output circuitry so that the AC output and DC output terminal having a common ground. Doing so would simplify the circuitry while maintaining the AC and DC outputs electrical protection. Furthermore, such arrangement would a re-arranging of two separate ground terminal into one common ground terminal and it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70.

Claims 5, 7 and 20 are rejected under 35 U.S.C. **103(a)** as being unpatentable over **Delaite**, as applied in the base claim., and in view of **Nakamura (US 6,433,457—hereinafter Nakamura)**.

Delaite reference discloses the claimed invention, except for the added limitations of the above listed claims.

Nakamura reference, however, teaches a brushless AC generator having rotor with claw-shaped poles (222 in figs 1-2) such brushless generators having rotor with claw-shaped poles are well known in the art and they are also known as alternators, which are commonly used as alternator in vehicles because brushless, voiding of slip ring, AC generators are more compact in size for suitable mounting in limited spacing of vehicles. Also, it would have been obvious to an artisan with necessary skill and ordinary knowledge in the art to configure the rotor poles and the stator poles having the same width because, as disclosed in the prior art generator of the **Delaite** reference, the rotor and stator having the same numbers of stator poles and rotor poles; hence, the stator's pole and rotor's pole having the same width would enhance magnetic interaction between the stator and the rotor by reducing magnetic leakage therebetween.

Therefore, by applying the **Nakamura** reference's important teaching, it would have been obvious to one skilled in the art at the time the invention was made to modify the prior art AC generator by configuring the rotor with claw-shaped poles that have the same width with the stator poles. Doing so would provide a magnetically enhanced AC generator known as alternator commonly used in a vehicle.

Claims 8 and 21 is rejected under 35 U.S.C. **103(a)** as being unpatentable over **Delaite**, as applied in the base claim, and in view of **Vetorino et al (US 5,975,714**—hereinafter **Vetorino**).

Delaite reference discloses the claimed invention, except for the added limitations of the above listed claim.

Vetorino reference, however, teaches a rectifier (20 in fig 5) having a bridge circuit comprising of four diodes (29) for converting (or rectifying) AC into DC output, wherein there is a capacitor (22), as standard configuration, connecting across the DC output. **Vetorino** teaches that such sole four-diode bridge rectifier is a conventional rectifier's bridge circuit in the art. Furthermore, the Examiner takes Official Notice that rectifiers having bridge circuit with four diodes are very well known in the art (see cited references for evidence supporting this statement).

Therefore, by applying the **Vetorino** reference's important teaching, it would have been obvious to one skilled in the art at the time the invention was made to modify the prior art AC generator by configuring the rectifier's bridge circuit that having four diodes. Doing so would provide a rectifier that efficiently converting (or rectifying) AC into DC output while require reduced number of rectifier circuit components.

Claims 9-13 and 15-16, as understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over **Delaite** in view of **Fair**.

Delaite reference discloses the claimed invention, except for the added limitations of the following:

Subsection (A): the generator's AC output connected to a first load through AC rated switches, said AC output rectified and connected to a second load through DC rated switches; wherein the output is split into AC and rectified DC, as well as any combination of low and high voltages; wherein said first output is voltage regulated with Triac's or S.C.R.'s.

Subsection (B): said first load consists of incandescent lamps, heaters and AC motors, and wherein said second load consists of DC motors, actuators and a battery.

Subsection (C): the stator pole and the rotor pole having the same width.

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*Regarding the limitations listed in Subsection (A) herein, **Fair** reference discloses (as shown in fig 5) a generator having its output the output being split into AC and rectified into DC for AC load and DC load, wherein the circuit including a switch controller (32) controlling AC output for the AC load and the rectified DC output to a DC load. Those skilled in the art would understand that the important teaching concept of **Fair** reference is that AC generator's output can be divided into AC output for AC load and can be rectified into DC output for DC load, as well as low and high voltage, via a controllably switching mechanism; furthermore, based on this important teaching concept, it would have been obvious to an artisan with necessary skill and ordinary knowledge in the art to select a controllably switching mechanism as a computerized controllably switch or manual switches, relays or semi-conductors switching devices being used as DC rated switches and AC rated switches and Triac's or S.C.R.'s as voltage regulating devices for the purpose of controllably utilizing the AC generator's output as AC output and DC output.*

Thus, by applying the **Fair** reference's important teaching, it would have been obvious to one skilled in the art at the time the invention was made to modify the prior art AC generator by providing a control circuit that controllably switching, via DC and AC rated switches, and AC voltage regulating devices such as commonly known Triac or S.C.R, so that the generator's AC output to be split into AC output for AC load and rectified DC output for DC load and/or having any combinations of low and high voltage. Doing so would enable the generator's AC output to be variously used for any particular industrial application that has both DC and AC loads.

*Regarding the limitations listed in Subsection (B) herein, the combination of **Delaite** and **Fair** references discloses an AC generator with its AC output being split into AC and DC; hence, those skilled in the art would realize that with both DC and AC types of outputs, the prior art AC generator would have many different industrial applications, particularly being used as a vehicle's alternator to provide both AC and rectified DC for number of required-AC-input parts and required-DC-input parts in the vehicle. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to provide the prior art AC generator's AC output for AC loads such as incandescent lamps, heaters and AC motors, and the generator's rectified DC output for DC loads such as DC motors, actuators and a battery. Doing so would enable the generator to be used in industrial applications, e.g. an alternator in a vehicle, with both DC and AC output are required for both AC and DC loads.*

*Regarding the limitations listed in Subsection (C) herein, the **Delaite** reference discloses the numbers of respective rotor magnet poles and the stator poles are the same. Thus, it would have been obvious to an artisan with necessary skill and ordinary knowledge in the art to configure the rotor poles and the stator poles having the same width because, as disclosed in the prior art generator of the **Delaite** reference, the rotor and stator having the same numbers of stator poles and rotor poles. Doing so would enhance magnetic interaction between the stator and the rotor by reducing magnetic leakage therebetween.*

Claim 14 is rejected under 35 U.S.C. **103(a)** as being unpatentable over **Delaite**, as applied in the base claim., and in view of **Nakamura (US 6,433,457—hereinafter Nakamura)**.

Delaite reference discloses the claimed invention, except for the added limitations of the above listed claims.

Nakamura reference, however, teaches a brushless AC generator having rotor with claw-shaped poles (222 in figs 1-2) such brushless generators having rotor with claw-shaped poles are well known in the art and they are also known as alternators, which are commonly used as alternator in vehicles because brushless, voiding of slip ring, AC generators are more compact in size for suitable mounting in limited spacing of vehicles.

Therefore, by applying the **Nakamura** reference's important teaching, it would have been obvious to one skilled in the art at the time the invention was made to modify the prior art AC generator by configuring the rotor with claw-shaped poles. Doing so would provide a magnetically enhanced AC generator known as alternator commonly used in a vehicle.

Claims 17-18 are rejected under 35 U.S.C. **103(a)** as being unpatentable over **Delaite** and **Fair**, as applied in the base claim, and in view of **Vetorino**.

The combination of **Delaite and Fair** references discloses the claimed invention, except for the added limitations of the above listed claim.

Vetorino reference, however, teaches a rectifier (20 in fig 5) having a bridge circuit comprising of sole four diodes (29) for converting (or rectifying) AC into DC output, wherein

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there is a capacitor (22), as standard configuration, connecting across the DC output. **Vetorino** teaches that such sole four-diode bridge rectifier is a conventional rectifier's bridge circuit in the art. Furthermore, the Examiner takes Official Notice that rectifiers having bridge circuit with four diodes are very well known in the art (see cited references for evidence supporting this statement).

Therefore, by applying the **Vetorino** reference's important teaching, it would have been obvious to one skilled in the art at the time the invention was made to modify the prior art AC generator by configuring the rectifier's bridge circuit that having sole four diodes. Doing so would provide a rectifier that efficiently converting (or rectifying) AC into DC output while require reduced number of rectifier circuit components.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Communication

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tran N. Nguyen via **email** at Tran.Nguyen@USPTO.gov

The applicant is advised that **ALL communications via email are UNOFFICIAL**. Emailing is only for establishing initial contact with the Examiner.

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If the Applicant needs to request an Official Interview, please email to inform the Examiner and an Official Interview will be scheduled accordingly.

If attempts to reach the examiner by email are unsuccessful, the examiner's supervisor, Quyen Leung can be reached on 571-272-8188. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. (Note: **Use this Central Fax number 571-273-8300 for all official response.**)

Do **not** use the Examiner's RightFax number without informing the Examiner first because, according to the USPTO policy, any document being sent via RightFax is treated as unofficial response and will not be officially dated until it is routed to the Central Fax.

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/Tran Nguyen/

Primary Examiner, Art Unit 2834